The Button Box

Reporting Category Patterns, Functions, and Algebra
Topic Sorting and classifying objects according to attributes

Materials

- Children's literature relating to collections of objects (e.g., buttons, bugs)
- Letter to parents requesting donations of small "junk" objects (e.g., bread tags, bottle caps, plastic milk carton lids, keys, buttons, old nuts and bolts, rocks, shells) for collections. (Draw a square on the letter, and indicate that each object must fit inside the square.)
- Sample collections
- Small boxes for holding collections (e.g., boxes in which checks or a gross of pencils came)
- Small boxes containing assortments of buttons

Vocabulary

describe, different, observe, pattern, sort, attribute, compare, same, sort

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Introduce students to the concept of collections, using a relevant children's story. Tell students that they will be creating collections for the class to use. Show students examples of objects that will be collected to create collections. Tell students that the letter to their parents will explain what to bring and the size of the objects to bring. Show students some sample collection boxes so they understand that the objects must be quite small.
2. Demonstrate sorting, using one of the collections (e.g., milk carton lids). Take a handful of lids from the box, and place it on a mat so all students can see. Ask students to describe some of the attributes of the lids (e.g., color, texture). Sort the lids by one of the suggested attributes (e.g., color). Mix up the lids, and sort them again by a different attribute (e.g., lids with ridges and lids that are smooth). Sort the lids again. Continue asking for different attributes and sorting, as this also helps students increase their vocabulary.
3. Put students into small groups, and give each group a collection of buttons to sort. Have groups sort the buttons into two or more categories. Sorting categories might include color, size, shape, and number of holes. When each group completes its sort, have a student from the group explain it. Once the sort has been explained, have the group sort the collection into two or more different categories. Have groups repeat this procedure as many times as is possible in the time allotted.

Assessment

- **Questions**
  - Show the students a set of sorted objects. "How are the objects sorted? How do you know?"
  - Display a collection of attribute blocks. "Can you find blocks that are red *or* round? Can you find blocks that are red *and* round? Were the groups the same?"

- **Journal/Writing Prompts**
  - "Remember sorting the buttons. Draw or write two ways you sorted the buttons."
  - Display a collection of paper shapes cut out from different colors of construction paper. "Draw or write how you could sort these shapes. Tell what you would call (how you would classify) each sort."
- **Other**
  - Distribute a handful of one type of object (e.g., toy cars, buttons, earrings, seeds) to each student. Have students sort their objects by a certain attribute such as size, shape, color, or type, using bowls for sorting. Have students label (classify) the bowls with the attribute they chose and then share the information with the class.
  - Use examples and non-examples to help students identify attributes. When sorting a collection, let students know, "These fit my rule and these do not fit my rule." Let students guess the rule based on the attribute."

Extensions and Connections (for all students)

- Play "Read My Mind" with the students. Without telling students how you are sorting, sort a group of students by a certain attribute, such as tennis shoes–nontennis shoes or brown hair–nonbrown hair. Ask students to guess the rule by which you sorted. After the students have played and understand the game, allow students to be the sorters.
- Have the class sit in a circle on the floor. In the middle of the circle, create two large circles with yarn. Use two rules to sort a set of objects (e.g., use attribute blocks and label one circle "Triangles" and the other circle "Squares"). Have students sort the objects. Repeat with different rules, but use rules that allow some objects to fit into both categories (e.g., "Squares" and "Red"). Ask students what to do with objects that fit both rules (overlap the yarn circles and put objects inside *both* circles). Ask what to do with objects that do not fit either rule (put outside of both circles).
- After sorting and classifying collections of objects, have students graph the results.
- Suggest that the students sort eating utensils at home by putting knives, forks, and spoons into a drawer tray with dividers.
- Suggest that students help sort laundry at home into darks, lights, and/or towels.
- Have students sort words by initial consonants.

Strategies for Differentiation

- Have students use a Venn diagram to sort objects.
- Use larger objects for students who have trouble handling small ones.